Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Shell Chemical LP
Shell Chemical Company - Geismar Plant
Geismar, Ascension **Parish, Louisiana**
Agency Interest Number: 1136
Activity Number: PER20050035
Proposed Permit Number: 2729-V1

I. APPLICANT

Company:
Shell Chemical Company - Geismar Plant
PO Box 500

Facility:
Shell Chemical LP
7594 Hwy 75
Geismar, Ascension Parish, Louisiana
Approximate geographic coordinates are latitude 30° 11' 00" and longitude 90° 59' 40".

II. FACILITY AND CURRENT PERMIT STATUS

Shell Chemical LP operates a chemical manufacturing complex, Geismar Plant, consisting of the Olefins Units, Alcohol Units, Cogen Unit, Logistic Unit, Utilities Unit, M-Unit, PDO-1 Unit, EOEG-2 Unit and EOEG-3 Unit. Ascension Parish is currently designated as a nonattainment for all NOx and VOC. The M-Unit is part of a major source subject to the Part 70 operating permit.

This Part 70 Operating permit for the Cogeneration Units operates under Permit No. 2729-V0 dated June 26, 2001.

Shell Chemical Company - Geismar Plant is a designated Part 70 source. Several Part 70 permits have been issued to the operating units within the complex. These include:

Permit No.	Unit or Source	Date Issued
2057-V3	EOEG 2 Unit	7/18/2006
2136-V2	Utilities Unit	6/26/2001
2151-V2	Alcohol (K) Units	2/26/2002
2185-V2	EOEG 3 Unit	8/28/2006
2489-V0	PDO Unit	11/3/1997
2669-V1	Olefins (Shop) Unit	6/26/2001
2727-V1	Logistics Unit	1/26/2007

Permit No.	Unit or Source	Date Issued
2729-V0	Cogeneration Unit	6/26/2001
3001-V1	M-Unit	5/21/2006
3030-V0	EOEG 1 Unit	5/21/2006

There are also seven Part 70 permit renewal applications which have been submitted to the Louisiana Department of Environmental Quality (LDEQ) that are still undergoing the permit review process. These include:

Permit No.	Unit or Source	Date Submitted
2057-V4	EOEG 2 Unit	1/31/2007
2136-V3	Utilities Unit	12/21/2005
2151-V3	Alcohol (K) Unit	8/25/2006
2489-V1	PDO Unit	5/3/2002
2669-V2	Olefins (Shop) Unit	12/21/2005
2729-V1	Cogeneration Unit	12/21/2005
3001-V3	M-Unit	11/20/2006

In addition, the following PSD permits were also issued to the complex.

Permit No.	Unit or Source	Date Issued
PSD-LA-611	Polymer Complex	10/27/1997
PSD-LA-647 (M-2)	Cogeneration Unit	12/22/2003
PSD-LA-647 (M-2)	Olefins and Alcohol	2/26/2002

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application dated December 21, 2005 requested a Part 70 operating permit renewal/modification for the Cogen Unit. Additional information as of March 14, 2007 was also submitted.

Project

Shell Chemical LP – Geismar Plant operates the Cogen Unit which is an existing unit that is comprised of two 40 megawatt cogeneration facilities. These facilities provide necessary steam and electricity requirements to the Geismar Plant. The units are equipped with Selective Catalytic Reduction as control device for NOx under the Prevention of Significant Deterioration (PSD) requirements.

Shell proposes to incorporate the following modification to the Cogen Unit and the permit:

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1. Update the fugitive emissions based on fugitive components count assessment;

2. New piping and associated with the proposed combustion of butene as fuel in the cogeneration duct burners and updated fugitive component count;

3. Update emissions based on emission calculation methodology and source specific information;

4. Update the Insignificant Activity Source list;

5. Update the General Condition XVII list;

6. Incorporate minor changes based on a Letter of No Objection dated November 4, 2005 (allows use of ethane to supplement natural gas); and

7. Incorporate the current promulgated regulatory requirements.

Shell is proposing to add the capability for the combustion of butene fuel in the Cogen Unit, duct burners. This change will allow Shell to reduce the amount of purchased natural gas by supplementing with a less expensive fuel. This change will require the addition of piping and associated fugitive components. There will not be any change in the permitted emissions for the criteria pollutants from the duct burners. The NOx emissions are controlled by the existing add on control device (selective catalytic reduction, SCR). The SCR was installed under the PSD Permit No. PSD-LA-647(M-1) dated June 26, 2001. Other criteria pollutant emissions will not change due the utilization of butene as fuel.

Proposed Permit

Part 70 Operating Permit No. 2729-V1 will be a renewal/modification of Part 70 Operating Permit No. 2729-V0 dated June 26, 2001.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	91.80	91.80	-
SO_2	3.80	16.04	+12.24
NO_X	117.42	117.42	-
CO	357.40	357.40	-
VOC	52.71	58.00	+ 5.29

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ammonia*	87.12	87.12	-
Formaldehyde	3.20	3.20	-
n-Hexane	NS	0.31	+0.31
Toluene	NS	0.01	+0.01
Xylene	NS	0.01	+0.01
Total	90.32	90.65	+0.33

* Ammonia is not a VOC

Other VOC: 54.47

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

For a list of the applicability and exemptions of selected items, refer to section X, table 1 and section XI table 2 in the permit.

Prevention of Significant Deterioration/Nonattainment Review

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, National Emission Standards for Hazardous Air Pollutants (NESHAP), New Source Performance Standards (NSPS), Prevention of Significant Deterioration (PSD) including Nonattainment New Source Review (NNSR), and Compliance Assurance Monitoring (CAM).

Streamlined Equipment Leak Monitoring Program

None

MACT Requirements

The Louisiana Air Toxics Program (LA MACT) requires a major source emitting any Class I or II pollutant at a rate that exceeds the minimum emission rate for that pollutant to demonstrate compliance with the Maximum Achievable Control Technology (MACT) standards. Additionally, the Louisiana Air Toxics Program requires a major source emitting any Class I, II, or III toxic air pollutant greater than the minimum emission rate for that pollutant to determine its status of compliance with the applicable ambient air standard (AAS) defined for the

pollutant.

The Cogen Unit is subject to the 40 CFR 64, Continuous Assurance Monitoring (CAM). The requirements that are applicable to each source in the application are detailed in the regulatory applicability tables.

Air Quality Analysis

No modeling was conducted as a part of this minor modification.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

Not Applicable

VI. PERIODIC MONITORING

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥10 tons per year of any toxic air pollutant; ≥25 tons of total toxic air pollutants; and ≥100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.